In the Abstract

Replace the Abstract as filed with the following Abstract (also provided as separate sheet):

Combined Digital-Analog Signal Processors, Waveforms with Time Constrained Signal (TCS) response and Long Response (LR) filtered Bit Rate Agile (BRA) Modulation-Demodulation (Modem) Format Selectable (MFS) and Code Selectable (CS) system implementations for Interoperable Multiple Standard Enhanced GSM, CSMA, TDMA, OFDM, and third-generation CDMA, W-CDMA and B-CDMA systems and associated methods. Systems include Feher's Gaussian Minimum Shift Keying (GMSK or FGMSK) and Feher's Quadrature Phase Shift Keying (FQPSK) systems combined with Adaptive Antenna Arrays (AAA), Pseudo-Error (PE) based Non-Redundant Error Detection (NRED) controlled IF adaptive equalizers, smart antenna and smart diversity systems which have spectral/RF power efficiency and enhanced end-to-end performance.

In the Claims

Please cancel Claims 1-10 and 14-20 without prejudice or disclaimer.

Please amend Claims 11-13 as follows:

11. (Amended) A structure for trellis coding and decoding, of extended memory Bit Rate Agile (BRA), Modulation-Demodulation (Modem) Format Selectable (MFS) and Code Selectable (CS) input port for receiving input data comprising:

a trellis encoder;

a BRA, MFS and CS splitter having an input coupled to said input port, and serving to split said input data into baseband signal streams;

a BRA, MFS and CS baseband signal processing network for receiving said baseband signal streams and providing BRA, MFS and CS in-phase (I) and quadrature (Q) phase baseband signals to the I and Q input ports of the transmitter;

means for baseband signal processing for receiving said baseband signal streams and providing for BRA, MFS and CS systems changeable amounts of cross-correlation;

means for selectively reducing the cross-correlating factor down to zero between Time Constrained Signal (TCS) response processors combined with TCS and Long Response (LR) processors;

a receiver port for connection of the received cross-correlated signal to the BRA and MFS demodulator;

a BRA and MFS quadrature demodulator; and

a Mis-Matched (MM) BRA and MFS demodulator filter set in which the said demodulator filter set is MM to that of the BRA and MFS filter set of the modulator.

12. (Amended) A cross correlated quadrature architecture signal processor for producing Bit Rate Agile (BRA), cross-correlated in-phase and quadrature phase signal streams for modulation by a Quadrature Modulator and transmission and for signal demodulation comprising:

(a) means for receiving an input BRA signal selected from the group of binary, multi-level, and analog signals and combinations thereof;

(b) filtering means of the BRA input signal;

(c) BRA signal shaping means for said filtered input signal;

(d) amplification means for varying the modulation index of said BRA signal, said amplifier receiving said filtered input signal and providing an amplified input signal;

(e) means for BRA signal splitting for receiving said amplified input signal;

(f) cross correlation means of BRA data streams; and a BRA signal processor means having an in-phase and quadrature phase channel each receiving one of said cross-correlated data streams, each of said in-phase and quadrature phase channel having a first delay gain filter, means for generating BRA Cosine and BRA Sine values for said in-phase and quadrature phase channel data stream;

(g) a BRA wave shaper and a second BRA delay gain filter, such that said signal processor provides in-phase and quadrature phase cross correlated data signal processor;

(h) means for quadrature modulation with a BRA modulated signal adaptable for coherent or non-coherent demodulation of the quadrature BRA Frequency Modulated (FM) signal;

(i) controlling means and signal selection means for BRA rate processor selection;

(j) selection means for Linear and/or Non-Linearly Amplified (NLA) baseband and/or of modulated signals coupling port means to the transmission medium;

(k) receiver port means for connection of one or more received cross-correlated signals to the BRA demodulator;

(l) BRA demodulator means; and

(m) Mis-Matched (MM) demodulator filtering means for BRA, MFS and CS demodulation in which the said demodulator filter set is MM to that of the BRA, MFS and BRA filter set of the modulator.

13. (Amended) A signal processing, modulation, transmission, signal reception and demodulation system, designated as Feher's Gaussian Minimum Shift Keying (GMSK) for Bit Rate Agile (BRA), Modulation Demodulation (Modem) Format Selectable (MFS) and Code Selectable (CS) systems comprising:

(a) an input port for receiving input data;

(b) a Gaussian low-pass filter and presetable gain integrator for processing said input data and providing filtered input data;

(c) a splitter having an input coupled to said input port, and serving to split said filtered input data into in-phase (I) and quadrature phase (Q)channel cross coupled data streams such that said I and Q data streams are proportional in gain and phase to said input data;

(d) a signal processing network for receiving said I and Q channel data streams and providing processed in-phase and quadrature phase signals, said signal processing network including a signal processor for varying the modulation index for said signal processing network;

(e) means for generating Cosine and Sine values for said I and Q channel BRA, MFS and CS data streams;

(f) means for filtering by bit rate agile FIR or IIR or switched filter and/or other post GMSK shaping filters said signals in the I and Q channels such that said signal processor provides in-phase and quadrature phase cross correlated data signals for quadrature modulation with a modulated signal suitable for amplification in linear and non-linear mode;

(g) means for providing the amplified signal to the transmission port;

(h) a receiver port for connection of the received cross-correlated signal to the BRA and MFS demodulator;

(i) a BRA and MFS quadrature demodulator; and

(j) a Mis-Matched (MM) BRA and MFS demodulator filter set in which the said demodulator filter set is MM to that of the BRA and MFS filter set of the modulator.